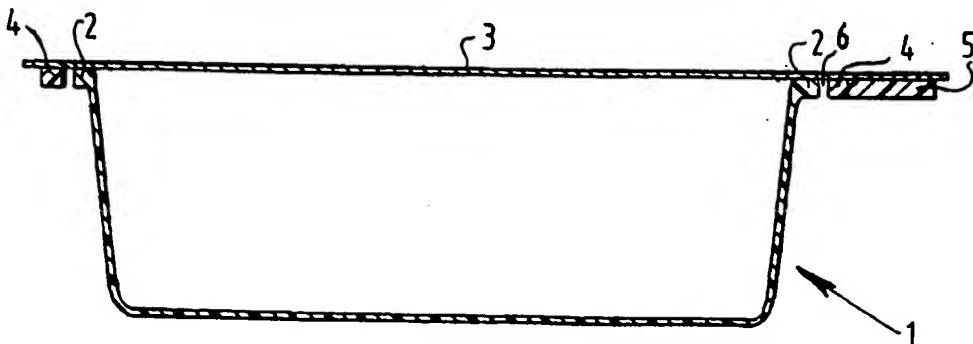




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(54) Title: STRENGTHENED FOIL LID



(57) Abstract

The invention relates to a container (1) for foodstuffs manufactured from plastic and open at its top, comprising an edge (2) which is arranged on the top side of the container and on which a lid (3) manufactured from flexible material, such as metal foil, is arranged by means of a sealing connection, wherein the lid is provided on its periphery with a substantially annular strengthening structure (4), wherein the strengthening structure forms a rigid lid with the flexible material fixed thereon. As a result of these measures the whole top part of the container is accessible. According to a first embodiment the lid is connected to the upper edge by means of a hinge (6), and the hinge is formed by a straight part in the weakened portion (6) between the substantially annular strengthening structure and the upper edge of the container. This configuration results in an easy-to-open lid, wherein the lid always remains connected to the container.

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STRENGTHENED FOIL LID

5 The invention relates to a container for foodstuffs, manufactured from plastic and open at its top, comprising an edge which is arranged on the top side of the container and on which a lid manufactured from flexible material, such as metal foil, is arranged by means of a
10 sealing connection, wherein the lid is provided on its periphery with a substantially annular strengthening structure.

Such a container finds application for instance in the packing of foodstuffs which must be protected against
15 escape of moisture, such as salads, yoghurt and the like, but also for foodstuffs wherein the entrance of moisture is undesirable, such as tea or other hygroscopic materials. The application is by no means limited herein to liquid or semi-liquid materials; meat products or
20 other foodstuffs can for instance also be packed in such a container. Nor is the invention limited in any way to foodstuffs; other materials, such as moist wiper cloths and the like, can also be packed in such a container. It is also important herein that the contents are protected
25 against other influences from outside, such as contamination, radiation. Such a seal otherwise also offers protection against the escape of aroma and the like.

Such a container is known from US-A-4,079,567.
30 In this known container the lid is divided into two pieces. One piece remains firmly connected to the container, while another part is hinged so that access can be gained to the contents.

In many situations this is less desirable; in such a
35 situation one will wish to have available an opening extending over the whole surface of the lid.

This object is achieved in that the strengthening structure forms a rigid lid with the flexible material fixed thereon.

As a result of these measures the whole top side of 5 the container is accessible.

According to a first embodiment the lid is connected to the upper edge by means of a hinge, and the hinge is formed by a straight part in the weakened portion between the substantially annular strengthening structure and the 10 upper edge of the container.

This configuration results in an easy-to-open lid, wherein the lid always remains connected to the container.

It is however also possible for the lid to be 15 connected to the upper edge by means of a connection breakable over its whole length. This configuration provides the option of removing the lid integrally from the container.

It is possible in both cases that, after breaking of 20 the breakable connection, the lid remains connectable to the upper edge by a clamping connection.

This possibility results in an easy re-closure of the lid.

An embodiment which is particularly attractive in 25 terms of production results when the annular strengthening structure is formed integrally with at least the upper edge of the container.

Such a container can herein be formed by injection moulding and thermoforming as well as by blow moulding; 30 in both cases only a single operation is necessary to form a container according to the present invention.

According to another preferred embodiment the annular strengthening edge is connected to the upper edge by means of a weakened portion extending over a large 35 part of the periphery of the upper edge of the container.

This measure also has the result of facilitating manufacture of such a container. It will be apparent that such a weakened portion can be formed not only by a

thinned region but also by material bridges, or a combination thereof.

According to another preferred embodiment the weakened portion is formed by adhering the flexible 5 material forming the lid to the widened region or the annular strengthening edge by means of a stamp. It is hereby possible in one operation both to adhere the flexible material to the container and to form the weakened portion.

10 In order to facilitate opening of the container, a widened region of the weakened portion is arranged on either side of the hinge.

Other attractive preferred embodiments are stated in the remaining sub-claims.

15 The present invention will be elucidated hereinbelow with reference to the annexed figures, in which:

figure 1 shows a cross-sectional view of a container according to the invention;

20 figure 2 shows a perspective view of the container shown in figure 1 in the opened situation;

figure 3 is a detail cross-sectional view of a second embodiment of the invention in closed situation;

figure 4 is a view corresponding with figure 3 in the opened situation;

25 figure 5 shows a cross-sectional view of another embodiment; and

figure 6 shows a detail view of the embodiment shown in figure 5.

Figure 1 shows a container which is formed by a tub 30 or cup 1 provided on its top with an edge 2. Edge 2 extends round tub 1 and is flat on its upper side. A lid 3 manufactured from foil, for instance metal foil, is arranged on edge 2. Lid 3 is connected to upper edge 2 by means of glue, "seal"-connection or by means of a plastic 35 weld connection. Such connections are generally known.

The container described heretofore corresponds with the prior art.

According to the prior art a strengthening structure 4 is arranged around edge 2. This strengthening structure 4 is formed for instance by the same material as that from which the edge is manufactured.

5 It is important herein that the edge extends around the upper edge of the container.

It is otherwise also possible to embody the strengthening structure 4 as a strengthening, for instance a thickening of foil lid 3. The strengthening 10 structure is provided with a pull-tab 5 at one position. Strengthening structure 4 and pull-tab 5 are likewise connected to lid 3 by means of a welding process or by means of glue. Strengthening structure 4 is separated from edge 2 by means of a gap 5.

15 During opening of lid 3 the pull-tab 5 is moved upward, wherein strengthening structure 4 is also carried upward as well as lid 3. Because lid 3 is supported on its whole periphery, tearing of the lid is prevented. The situation shown in figure 2 is then obtained.

20 It is noted here that between strengthening structure 4 and edge 2 in figure 2 a thin layer of material 6 has remained in place to form a hinge. It will be apparent that numerous other constructions are possible. It is thus possible for instance to arrange the 25 strengthening structure not only on the outer side of the edge, but also on the inner side. It is further possible to arrange the strengthening structure on top of the edge and to connect the strengthening structure in one or other releasable manner to edge 2.

30 Another significant advantage of the present invention is the fact that the lid can easily be used to re-close the container; in the prior art the lid is usually torn to pieces.

Figure 3 shows a cross-section of the situation in 35 which the lid remains connected to the edge by means of a hinge strip 5. This situation is shown in figure 3 in the closed situation of the lid and in figure 4 in the opened situation of the lid.

The ability to re-close the lid otherwise has the consequence that the cover foil usually used in the case of butter and margarine can be omitted. A significant saving is thus obtained by replacing the separate 5 clamping lid used heretofore with a lid according to the invention.

In figure 5 is shown a cross-section of a subsequent embodiment wherein container 1 is provided on its top side with a strengthening edge 2 extending all around. As 10 in the previous embodiment, lid 3 is provided with a strengthening structure 4. Strengthening structure 4 is separated from upper edge 2 by a weakened portion 6. Up to this point this embodiment corresponds with the embodiment according to figures 3 and 4.

15 The embodiment shown in figure 5 differs however in that this is a round container, which is attractive in placing of the lids generally manufactured from foil material; positioning does not then have to be taken into account.

20 In addition, the weakened portion 6 is straight at the position of the hinge to enable the tilting movement of the hinge.

On the opposite side the strengthening 4 is bent downward to form a strengthening tab 8.

25 This achieves on the one hand that the strengthening tab obtains extra strength, and furthermore this tab does not then protrude, which facilitates stacking and placing into boxes of the container.

The bent portion 8 can moreover extend over the 30 whole periphery of the container. This results in extra strengthening.

Figure 6 shows how a "seal"-head 11 forms the weakened portion 6 simultaneously with the "sealing" of foil 3. The "seal"-head 11 herein presses material 2 of 35 the strengthening edge against stamp 12, whereby an annular protrusion 13 of stamp 12 forms the weakened portion 6.

Finally, it is pointed out that in the embodiment of figure 5 in one operation the weakened portion is punched, the flexible lid material is fixed to the strengthening ring and a hermetic sealing with the container is also realized. It is herein possible for the re-closable seal to be brought about with the strengthening ring, i.e. when the weakened portion between strengthening ring and the strengthening edge of the container seals hermetically. In the other case a hermetic sealing with the strengthening edge of the container is necessary. In this case it is even possible for plastic to be removed completely at the position of the weakened portion.

CLAIMS

1. Container for foodstuffs manufactured from
5 plastic and open at its top, comprising an edge which is
arranged on the top side of the container and on which a
lid manufactured from flexible material, such as metal
foil, is arranged by means of a sealing connection,
wherein the lid is provided on its periphery with a
10 substantially annular strengthening structure,
characterized in that the strengthening structure forms a
rigid lid with the flexible material fixed thereon.

2. Container as claimed in claim 1, **characterized in**
that the lid is connected to the upper edge by means of a
15 hinge, and that the hinge is formed by a straight part of
the weakened portion between the substantially annular
strengthening structure and the upper edge.

3. Container as claimed in claim 1, **characterized in**
that the lid is connected to the upper edge by means of a
20 connection breakable over its whole length.

4. Container as claimed in claim 2 or 3,
characterized in that after breaking of the breakable
connection the lid is connectable to the upper edge by a
clamping connection.

25 5. Container as claimed in any of the foregoing
claims, **characterized in that** the annular strengthening
structure is formed integrally with at least the upper
edge of the container.

6. Container as claimed in claim 5, **characterized in**
30 **that** the annular strengthening edge is connected to the
upper edge by means of a weakened portion extending over
a large part of the periphery of the upper edge of the
container.

7. Container as claimed in claim 6, **characterized in**
35 **that** the weakened portion is formed by material bridges.

8. Container as claimed in claim 6, **characterized in**
that the weakened portion is formed by adhering the

flexible material forming the lid to the widened region or the annular strengthening edge by means of a stamp.

9. Container as claimed in claim 2, **characterized in that** a widened region of the weakened portion is arranged 5 on either side of the hinge.

10. Container as claimed in claim 2 or 9, **characterized in that** the lid is provided with a tab opposite the hinge.

11. Container as claimed in claim 10, **characterized** 10 **in that** the strengthening edge of the lid is bent downward.

12. Container as claimed in claim 10 or 11, **characterized in that** a discontinuity is incorporated in the widened region of the upper edge at the position of 15 the tab.

13. Container as claimed in any of the foregoing claims, **characterized in that** the flexible material is permanently connected to the strengthening edge.

14. Container as claimed in claim 13, **characterized** 20 **in that** the flexible material is breakably connected to the upper edge.

15. Container as claimed in any of the foregoing claims, **characterized in that** the upper edge of the container is substantially round.

25 16. Container as claimed in any of the foregoing claims, **characterized in that** a non-corrosive "seal" material is placed on the underside of the flexible material.

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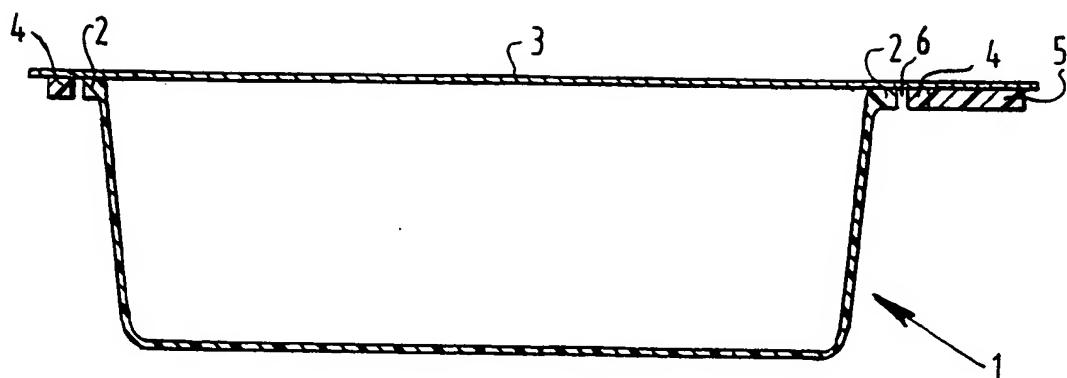


FIG.1

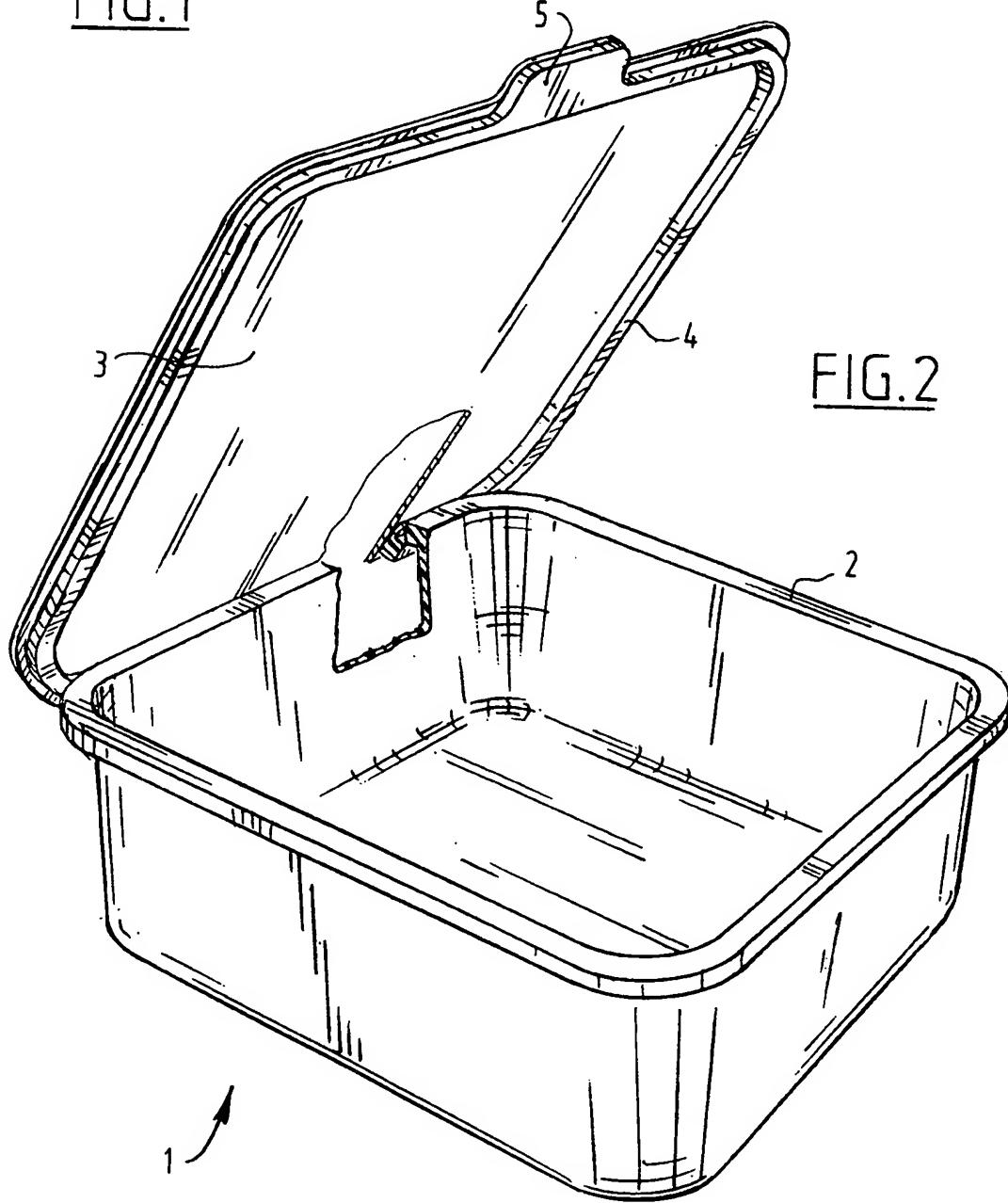
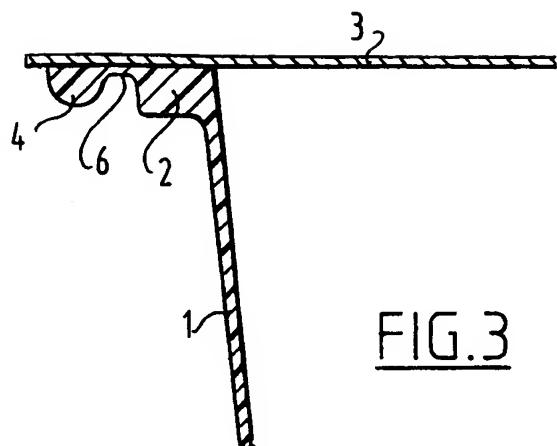
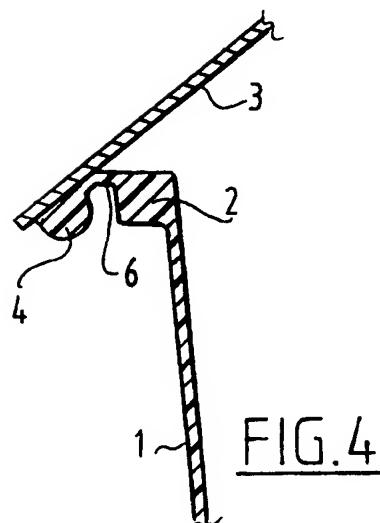
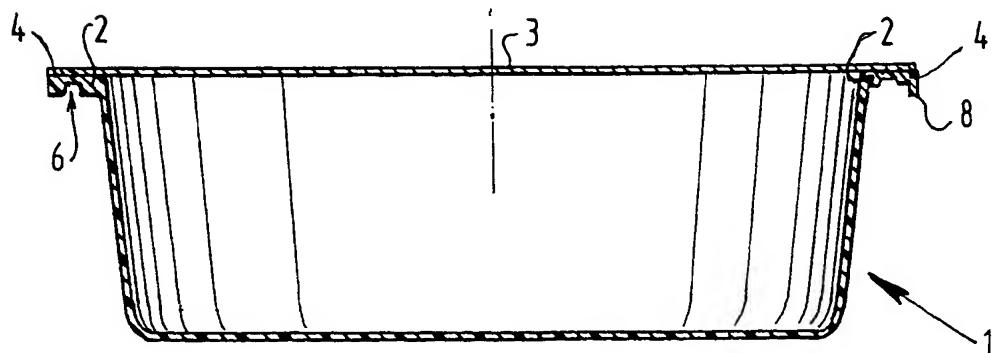
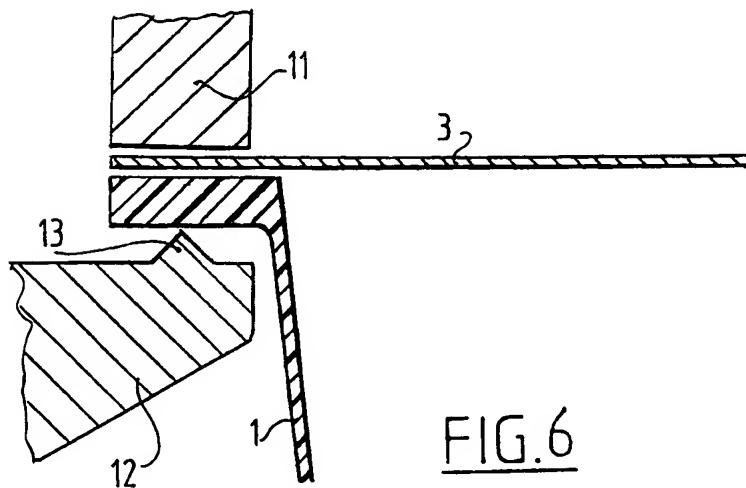


FIG.2

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FIG.3FIG.4FIG.5FIG.6

INTERNATIONAL SEARCH REPORT

Inten nai Application No
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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B65D77/20

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 079 567 A (SPRUYT HARRY ET AL) 21 March 1978 (1978-03-21) column 7, line 6 -column 8, line 26; figures 5,6,8 column 6, line 10 - line 51	1,2,4,5, 9-14,16
Y	FR 1 273 644 A (PLASTOMATIC CORP.) 9 February 1962 (1962-02-09)	3,6-8,15
X	the whole document	1
A	FR 2 618 411 A (VALOINE SARL CHARCUTERIE) 27 January 1989 (1989-01-27) the whole document	1-16
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Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 915 596 A (PLASTOMATIC CORP.) page 2, line 90 -page 3, line 54; figures 7-11 _____	1-16

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Information on patent family members

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